The Seed Crystal

Why Some AI Projects Deserve to Outlive the Session

The_Seed_Crystal_DIST.md — Final — August 5, 2026

Copyright © 2026 Thomas L. McMahon. All rights reserved. The Seed Crystal, TARC, and Triple-AI Recursive Consensus Review are original concepts and terms authored by Thomas L. McMahon, first publicly disclosed August 5, 2026.

Distribution copy: production notes on drafting and review removed. See the full version for the complete collaborative-review record.

The problem, and the payoff

Anyone who has done substantial work with AI has encountered the same problem: a conversation runs long, the session ends, tools change, and minutes, hours, days, or months of careful progress become trapped in a chat window that no longer exists.

This is not inevitable. A properly constructed document can preserve enough of the evidence, the reasoning, the corrections, and the open questions that a completely different AI - a different company, a different model, years later - can continue the work without first reconstructing months of prior context. Not because anything was remembered, but because the document itself was built to be handed off.

Most people never encounter this problem directly, because most AI use is inherently disposable: a weather check, a translation, a quick calculation, a restaurant recommendation. A brief question receives a brief answer, the session ends, which is entirely appropriate - there was nothing there worth preserving.

Some undertakings are different in kind. *Design an engineering system. Write a family history. Draft a legal argument. Challenge a regulatory finding.* Once a conversation begins accumulating sources, corrections, decisions, and open questions, it has entered a different lifecycle. It is no longer an exchange - it is a project, and projects merit outliving the session in which they began. A casual exchange is meant to end. A Seed Crystal is built to continue.

This essay introduces that concept: the **Seed Crystal**.

What a Seed Crystal is

A **Seed Crystal** is a document deliberately constructed so that another AI - or another person - can continue a body of work rather than restart it.

The term is drawn from chemistry: introduce a small, well-formed crystal into a solution prepared to crystallize, and the solution organizes around it. The seed is not the finished

structure, and is not even most of its eventual mass - but it is ordered in precisely the configuration the rest of the solution is prepared to adopt, and that is sufficient. What forms around it is a continuation of the seed, not a replica of it, built from different material, often in an entirely different vessel.

This is the correct way to understand a document of this kind. It is not an AI's memory. It is a structure sufficiently complete that any capable AI, encountering it for the first time, can recognize its shape and continue building from it.

What is actually being transferred

This distinction warrants precision, since it is easy to overstate. A Seed Crystal is **not**:

- An AI's internal memory or context window, in the technical sense
- Hidden prompts, or anything proprietary to a given vendor
- A conversation transcript

It **is**:

- The evidence base - sources cited directly, not merely summarized
- The reasoning trail - not only what was concluded, but why, and what was ruled out
- The provenance - which claim originated where, and how much weight it can bear
- The open questions - what remains genuinely unresolved, stated as such
- The corrections - a record of what was wrong previously, and how the error was identified

A conventional report supplies the destination. A Seed Crystal supplies the destination and the route taken to reach it, including the wrong turns. That record of error and correction is precisely what makes the document trustworthy enough to build upon, rather than merely convenient to read.

The deeper principle: this preserves the evolution of understanding, not merely the conclusions

Software engineering solved an analogous problem decades ago. Engineers established that source code is not simply its present state - it is the history of how that state was reached: every change, the reason behind it, and every instance where an approach was attempted and later reverted. This discipline is called version control, and it is a principal reason modern software can be developed by thousands of contributors, over many years, without collapsing into disorder. Not because any single version was flawless, but because every change was tracked, documented, and recoverable.

A Seed Crystal applies the same principle to research and reasoning rather than to code. It does not preserve a set of answers. It preserves how the understanding was reached - a more demanding thing to preserve, and considerably harder to falsify.

This is independent of any single vendor

Reasonable concern exists about dependence on a single AI company's product: what becomes of months of work if the tool changes, the subscription lapses, or a second opinion from a different system is required.

A Seed Crystal does not depend on any particular AI. It depends on the document itself. As models improve, the same document can be reinterpreted by newer systems, meaning research accumulated over years is not stranded on a single platform - it remains usable indefinitely, by whatever system comes next.

What must actually be true of the document

Format - Markdown, plain text, or otherwise - is necessary but not sufficient. A polished final report, however well cited, ordinarily does not achieve this on its own. What renders a document genuinely portable in this sense is a small set of disciplined habits, applied consistently:

1. **Correction-forward revision; no silent edits.** Every correction receives its own version and its own note explaining what changed and why.
2. **Citations to the primary source itself**, not a summary of it, so that any claim can be independently verified by a human reader or another AI.
3. **Explicit confidence levels on every finding** - confirmed, corroborated, still contested, or genuinely open. Not every claim carries equal certainty, and a rigorous document states this plainly.
4. **A visible review history** - what was examined, by what method, and the outcome when independent reviews disagreed.
5. **An honest accounting of what remains open.** A document that presents only finished conclusions gives the next builder nothing to extend.

Omit any one of these and the document may still be useful - but it ceases to function as a Seed Crystal. It reverts to being simply a report.

A demonstrated example

This methodology has been applied and tested across roughly twenty working revisions of a substantial historical research memorandum - primary-source analysis of a nineteenth-century land dispute, developed with independent review from multiple AI systems, each reconciled against the others and against the original archival record.

Two episodes from that process illustrate the point:

- A confident reading of a name on a historical map was subsequently revised after closer examination of the primary source - but the revision itself was not incorporated into the document until a later, independent audit specifically identified the inconsistency, several revisions afterward.

- One AI-derived claim was checked directly against a library's own archival records rather than accepted at face value, and held up under scrutiny. A separate claim, in a later round, did not, and was traced to a specific, identifiable error.

Neither episode represents a deficiency in the research. Each *is* the research. A version of this document stripped of that record - retaining only the final, polished conclusions - would be shorter and easier to read, and worth a fraction as much to whoever continues the work.

Why this matters beyond research settings

None of this depends on trusting an AI's memory. The same tool, company, or subscription is not required. What is required is the document itself - sources cited, changes logged, corrections left visible, open questions stated plainly. Provide that to any capable AI, on any platform, at any future point, and it can reconstruct the state of the work with minimal need to start over.

This holds whether the undertaking is historical research, a legal argument, a family history, an engineering problem, or a business strategy. Wherever serious, sustained thinking occurs across more than a single session, the same principle applies.

A Seed Crystal would retain its value even if AI ceased to exist tomorrow. A human researcher given the same document could understand not only the conclusions but the reasoning, the corrections, and the open questions, and continue the work equally well. AI does not create that value - it resided in the document from the outset, in the discipline of having written it properly. What AI contributes is the ability to put that continuity to use immediately, by anyone, on short notice.

Nor is this only a matter of handing work to someone else. It applies equally to *future work by the same author* - six months hence, after the specifics of one's own research have faded, the document permits resumption with the same rigor and context present at the point the work was set aside. The value of one's own documented reasoning to one's own future efforts is routinely underestimated.

In summary

A conventional report states the conclusion. A Seed Crystal documents how the conclusion was reached, what required correction along the way, and where the next phase of work should begin.

Conversations end. Software changes. AI systems improve. Companies are founded and dissolved. A properly constructed research document outlasts all of these. A document that preserves not merely its conclusions but its evidence, reasoning, corrections, and open questions ceases to be a report in the ordinary sense - it becomes a Seed Crystal, and the next investigator, whether human or AI, can extend the work rather than repeat it.

A note on precision in the central metaphor

A true seed crystal is absorbed into what forms around it, becoming indistinguishable from the new material once the process concludes. That is not, strictly speaking, an accurate description of what occurs here. What this document preserves - the citations, the corrections, the record of prior error - does not dissolve into whatever a subsequent AI produces. It remains visible, in the manner that a string remains visible within rock candy long after the sugar has crystallized around it. The precise chemical term for such a structure is a *nucleation site*, not a seed crystal.

The name Seed Crystal has been retained regardless, as the more memorable and communicative term. The persistence of the original record, however, is the more accurate account of what this document actually does.